UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,819	11/12/2003	Je-kook Kim	8021-188 (SS-18085-US)	6942

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EXAMINER
ALUNKAL, THOMAS D

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/706,819	KIM ET AL.
	Examiner	Art Unit	
	Thomas D. Alunkal	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>12 November 2003</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is

closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-34</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1,2,4,7-9,11,12,16,17,20,25,26,29,30 and 34</u> is/are rejected.

7)☒ Claim(s) <u>3,5,6,10,13,14,15,18,19,21,22,23,24,27,28,31,32,33</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>12 November 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11, 16, 29 and 34 are rejected under 35 U.S.C.101 because the claimed invention is directed to non-statutory subject matter. As provided on page 21 of the specification, a computer readable medium includes transmission media, including carrier waves. Claims drawn to components involving signals encoded with functional descriptive material do not fall within any of the categories of statutory subject matter as set forth in 35 U.S.C. 101, and are therefore, ineligible for protection. See 1300 OG 142 (November 22, 2005, Annex IV(c) in particular). Claims 11, 16, 29, and 34 are drawn to a "program" *per se* as recited in the preamble and as such is non-statutory subject matter. See MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and

functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,4,7,8,9,11, 12 and 16 rejected under 35 U.S.C. 102(b) as being anticipated by Hwang (**U.S. 6,058,082**).

Regarding claim 1, Hwang discloses an apparatus for detecting a type of an optical disc inserted into an optical disc system (Column 1, lines 32-34), the apparatus comprising an analog-to-digital converter (Figure 1, Element 7) that converts a focus error signal into an n-bit voltage data, and a duty measurer that compares the n-bit voltage data with a positive noise voltage level (Figure 4C, Element 423) and a negative voltage level (Figure 4C, Element 421), upcounts by a predetermined value if the n-bit voltage data is higher than the positive noise voltage level or lower than the negative voltage level (Figure 4C, Element 424) and outputs the upcounted result as a duty of the focus error signal (Figure 1, Element 8 and Column 5, lines 4-5).

Regarding claim 2, Hwang discloses a comparing unit that generates an upcount signal if the n-bit voltage data is higher than the positive noise voltage or lower than the negative voltage level (Figure 4C, Element 424 and Column 5, lines 4-5) and generates a hold signal if the n-bit voltage data is lower than the positive noise voltage level or

higher than the negative voltage level (Figure 4C, Element 423. Element 423 displays

that when n-bit voltage data is lower than Vmax, the same count is held), and a counter

that upcounts by a predetermined value in response to the upcount signal (Figure 4C,

Element 424), holds a current value in response to the hold signal (Figure 4C, Element

423. Element 423 displays that when n-bit voltage data is lower than Vmax, the same

count is held) and outputs the upcounted result as the duty of the focus error signal

(Figure 1, Element 8 and Column 5, lines 4-5).

Regarding claim 4, Hwang discloses an apparatus for detecting a type of an

optical disc inserted into an optical disc system (Column 1, lines 32-34), the apparatus

comprising an analog-to-digital converter (Figure 1, Element 7) that converts a focus

error signal into an n-bit voltage data, a reflected light amount measurer (Column 3,

lines 1-5) that compares current voltage data of the n-bit voltage data with previous

voltage data of the n-bit voltage data (Figure 4C, Element 423), upcounts by a

predetermined value if the current voltage data is more than a predetermined value

different from the previous voltage data (Figure 4C, Element 424) and outputs the

upcounted result as an amount of reflected light (Figure 1, Element 8 and Column 5,

lines 4-5).

Regarding claim 7, Hwang discloses a method for detecting a type of an optical

disc inserted into an optical disc system (Abstract) comprising, detecting a focus error

signal from an optical disc (Column 1, lines 49-52), measuring a duty of the focus error

signal by detecting a voltage of the focus error signal (Figure 1, Element 7) and

detecting the type of the optical disc depending on the measured duty (Column 1, lines 59-62).

Regarding claim 8, Hwang discloses converting the focus error signal into n-bit voltage data (Figure 1, Element 7), comparing the n-bit voltage data with a positive noise voltage (Figure 4C, Element 423) and a negative noise voltage (Figure 4C, Element 421), and upcounting by a predetermined value if the n-bit voltage data is higher than the positive noise voltage level or lower than the negative noise voltage level (Figure 4C, Element 424), and outputting upcounted result as the duty of the focus error signal (Figure 1, Element 8 and Column 5, lines 4-5).

Regarding claim 9, Hwang discloses the upcounting and outputting of the duty comprises generating the upcount signal if the n-bit voltage is higher than the positive noise voltage level or lower than the negative noise voltage level (Figure 4C, Element 424) and generating the hold signal if the n-bit voltage data is lower than the positive noise voltage level or higher than the negative noise voltage level (Figure 4C, Element 423. Element 423 displays that when n-bit voltage data is lower than Vmax, the same count is held), and upcounting by a predetermined value in response to the upcount signal (Figure 4C, Element 424), holds a current count value in response to a hold signal (Figure 4C, Element 423. Element 423 displays that when n-bit voltage data is lower than Vmax, the same count is held), and outputs the upcounted result as the duty of the focus error signal (Figure 1, Element 8 and Column 5, lines 4-5).

Regarding claims 11 and 16, Hwang discloses a recording medium with program to perform the method as claimed in claims 1 and 12.

Regarding claim 12, Hwang discloses a method of detecting a type of an optical

disc inserted into an optical disc system (Abstract), the method comprising detecting a

focus error signal from the optical disc (Column 1, lines 49-52), and measuring an

amount of reflected light of the focus error signal by detecting a voltage of the focus

error signal (Column 1, lines 52-53) and detecting the type of the optical disc depending

on the measured amount of reflected light (Column 1, lines 59-62).

Claims 17,20,25,26,29,30, and 34 rejected under 35 U.S.C. 102(e) as being

anticipated by Kadlec (**U.S. 6,882,6030**).

Regarding claim 17, Kadlec discloses an apparatus for adjusting a track balance

in an optical disc system (Column 1, lines 35-38), the apparatus comprising an analog-

to-digital converter that converts a tracking error signal into n-nit voltage data (Column

3, lines 52-54), a duty measurer that compares the n-bit voltage data with a

predetermined reference voltage (Column 3, line 57), upcounts or downcounts by a

predetermined value based on the comparison result (Column 3, lines 58-59), and

outputs the counted result accumulated for a predetermined balance adjustment time as

an unbalance value of the tracking error signal (Figure 5E, output of Element 595), and

a controller that compares the unbalance value with a predetermined allowable error

(Figure 5E, Element 598) and outputs a balance control signal (Figure 5E, Element 599)

to adjust a balance of the tracking error signal if the unbalance value exceeds the

predetermined allow error.

Regarding claim 20, Kadlec discloses an apparatus for adjusting a track balance in an optical disc system (Column 1, lines 35-38) by detecting a voltage of a tracking error signal, the apparatus comprising, an analog-to-digital converter that converts the tracking error signal into n-bit voltage data (Column 3, lines 52-54), and a reflected light amount measurer (Column 3, lines 47-49) that compares current voltage data of the n-bit voltage data and previous voltage data of the n-bit voltage data with a reference voltage (Column 3, line 57), upcounts or downcounts by a predetermined value based on the comparison result (Column 3, lines 58-59), and outputs the counted result accumulated for a predetermined balance adjustment time as an unbalance value of the tracking error signal (Figure 56E, output of Element 595), and a controller that compares the unbalance value with a predetermined allowable error (Figure 5E, Element 598 and outputs a balance control signal (Figure 5E, Element 599) to adjust a balance of the tracking error signal if the unbalance value exceeds the predetermined allowable error.

Regarding claim 25, Kadlec discloses a method of adjusting a track balance in an optical disc system (Column 1, lines 35-38), the method comprising detecting a tracking error signal from an optical disc inserted into the optical disc system (Column 3, lines 52-54), detecting a voltage of the tracking error signal (Column 3, lines 52-54) and measuring the duty of the tracking error signal with respect to a predetermined reference voltage as an unbalance value for a predetermined balance adjustment time (Column 3, line 57), and comparing the unbalance value with a predetermined allowable error (Figure 5E, Element 598) and generating a balance control signal (Figure 5E,

Element 599) to adjust a balance of the tracking error signal if the unbalance value

exceeds the predetermined allowable error.

Regarding claim 26, Kadlec discloses converting the tracking error signal into n-

bit voltage data (Column 3, lines 52-54), and comparing the n-bit voltage data with the

reference voltage (Column 3, line 57), upcounts or downcounts by a predetermined

value for the predetermined balance adjustment time based on the comparison result

(Column 3, lines 58-59) and outputting the counted result accumulated for the

predetermined balance adjustment time as the unbalance value (Figure 56E, output of

Element 595).

Regarding claims 29 and 34, Kadlec discloses a recording medium with program

to perform the method as claimed in claims 25 and 30.

Regarding claim 30, Kadlec discloses a method of adjusting a track balance in an

optical disc system (Column 1, lines 35-38), the method comprising detecting a tracking

error signal from an optical disc inserted into the optical disc system (Column 3, lines

52-54), detecting a voltage of the tracking error signal (Column 3, lines 52-54) and

measuring an amount of reflected light (Column 3, lines 47-49) of the tracking error

signal with respect to a predetermined reference voltage as an unbalance value for a

predetermined balance adjustment time (Column 3, line 57), and comparing the

unbalance value with a predetermined allowable error (Figure 5E, Element 598) and

generating a balance control signal (Figure 5E, Element 599) to adjust a balance of the

tracking error signal if the unbalance value exceeds the predetermined allowable error.

Allowable Subject Matter

Claims **3,5-6,10,13-15,18-19,21-24,27-28 and 31-33** objected to as being

dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening

claims.

Regarding claim 3, none of the references of record alone or in combination

suggest or fairly teach an apparatus for detecting a type of an optical disc inserted into

an optical disc system, the apparatus including all the limitations of both claims 1 and 2,

and wherein the comparing unit comprises a buffer register that buffers the n-bit voltage

data, an absolute calculator that calculates an absolute value of the n-bit voltage data

buffered by the buffer register, and a comparator that compares the absolute value

output from the absolute value calculator with the positive noise level, generates the

upcount signal if the absolute value is greater than the positive noise voltage level, and

generates the hold signal if the absolute value is less than the positive noise voltage

level.

Regarding claim 5, none of the references of record alone or in combination

suggest or fairly teach an apparatus for detecting a type of an optical disc inserted into

an optical disc system, the apparatus including all the limitations of claim 4, and wherein

the reflected light amount measurer comprises: a comparing unit that compares the

current voltage data with the previous voltage data, generates an upcount signal if the

current voltage data is more than the predetermined value different from the previous

voltage data, and generates a hold signal if the current voltage data is not different from

the previous voltage data; and a counter that upcounts by a predetermined value in response to the upcount signal output from the comparing unit, holds a current count value in response to the hold signal, and outputs the upcounted result as the amount of reflected light.

Regarding claim 10, none of the references of record alone or in combination suggest or fairly teach a method of detecting a type of an optical disc inserted into an optical disc system, the method including all the limitations of claims 7, 8, and 9, and wherein the generation of the upcount signal and the hold signal comprises: calculating an absolute value of the n-bit voltage data; and comparing the absolute value with the positive noise voltage level, generating the upcount signal if the absolute value is greater than the positive noise voltage level, and generating the hold signal if the absolute value is less than the positive noise voltage level.

Regarding claim 13, none of the references of record alone or in combination suggest or fairly teach a method of detecting a type of an optical disc inserted into an optical disc system, the method including all the limitations of claim 12, and wherein the detection of the type of the optical disc comprises: converting the focus error signal n-bit voltage data; and comparing current voltage data of the n-bit voltage data with previous voltage data of the n-bit voltage data, upcounting or downcounting by a predetermined value if the current voltage data is more than a predetermined value different from the previous voltage data, and outputting the upcounted or downcounted result as the amount of reflected light.

Regarding claim 19, none of the references of record alone or in combination

suggest or fairly teach an apparatus for adjusting a track balance in an optical disc

system, the apparatus including all the limitations of claims 17 and 18, and wherein the

comparator generates a hold signal if a frequency of the tracking error signal belongs to

a predetermined low frequency domain, and the counter holds a current count value in

response to the hold signal.

Regarding claim 21, none of the references of record alone or in combination

suggest or fairly teach an apparatus for adjusting a track balance in an optical disc

system by detecting a voltage of a tracking error signal, the apparatus including all the

limitations of claim 20, and wherein the reflected light amount measurer comprises: a

comparing unit that compares the current voltage data with the previous voltage data,

compares the current voltage data and the previous voltage data with a reference

voltage if a predetermined voltage difference occurs between the current voltage data

and the previous voltage data, and generates an upcount signal, a downcount signal, or

a hold signal based on the comparison result; and a counter that upcounts by a

predetermined value in response to the upcount signal, downcounts by a predetermined

value in response to the downcount signal, or holds a current count value in response to

the hold signal, and outputs the counted value accumulated for the predetermined

balance adjustment time as the unbalance value.

Regarding claim 27, none of the references of record alone or in combination

suggest or fairly teach a method of adjusting a track balance in an optical disc system,

the method including all the limitations of claims 25 and 26, and wherein the outputting

of the unbalance value comprises: comparing the n-bit voltage data with the reference voltage, generating an upcount signal if the n-bit voltage data is greater than the reference voltage, and generating a downcount signal if the n-bit voltage data is less than the reference voltage; and upcounting by a predetermined value for the balance adjustment time in response to the upcount signal, downcounting by a predetermined value in response to the downcount signal, and outputting the counted result accumulated for the balance adjustment time as the unbalance value.

Regarding claim 31 none of the references of record alone or in combination suggest or fairly teach a method of adjusting a track balance in an optical disc system, the method including all the limitations of claim 30, and wherein wherein the outputting of the unbalance value comprises: converting the tracking error signal into n-bit voltage data; and comparing current voltage data of the n-bit voltage data and previous voltage data of the n-bit voltage data with a reference voltage, upcounting or downcounting by a predetermined value for the balance adjustment time, and outputting the counted result accumulated for the balance adjustment time as the unbalance value.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Alunkal whose telephone number is (571)270-1127. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571)272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

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Thomas Alunkal
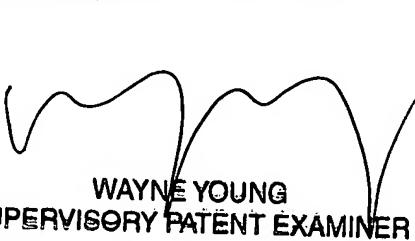
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